

Evaporative Air Coolers Optimization for Energy Consumption Reduction and Energy Efficiency Ratio Increment

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Abstract : Significant quota of Municipal Electrical Energy consumption is related to Decentralized Air Conditioning which is mostly provided by evaporative coolers. So the aim is to optimize design of air conditioners to increase their efficiencies. To achieve this goal, results of practical standardized tests for 40 evaporative coolers in different types collected and simultaneously results for same coolers based on one of EER (Energy Efficiency Ratio) modeling styles are figured out. By comparing experimental results of different coolers standardized tests with modeling results, preciseness of used model is assessed and after comparing gained preciseness with international standards based on EER for cooling capacity, aeration and also electrical energy consumption, energy label from A (most effective) to G (less effective) is classified. finally needed methods to optimize energy consumption and cooler's classification are provided.

Keywords : cooler, EER, energy label, optimization

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